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SELF-REGULATED LEARNING INTERVENTIONS FOR MOTIVATIONALLY DISENGAGED COLLEGE STUDENTS

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In the United States, higher or postsecondary education includes a diverse set of institutions and contexts that vary across a number of dimensions. For instance, these institutions can differ with regard to the academic programs they offer and the numbers and types of degrees they grant. Also, they range in size from smaller community colleges with enrollments below some secondary schools to land-grant universities with enrollments topping 50,000. The students served by particular institutions also vary widely. Some institutions are designed more for the needs of minority, immigrant, low-income, or lower achieving populations; others have costs and academic standards that limit their enrollments to wealthier or more elite students. As a whole, the system of higher education in the United States has been lauded as the best in world and routinely draws large numbers of students from other countries (Schmidtlein & Berdahl, 2011).

There also is an increasing recognition that too many students who begin a postsecondary education ultimately disengage and fail to complete

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any academic degree. Recent statistics, for instance, suggest that more than 40% of the first-time-in-college students who initially enrolled full-time in a 4-year institution failed to graduate within 6 years (National Center for Education Statistics, 2012). Within this context, withdrawing from enrollment and failing to graduate actually represents a final and critical step in a larger continuum of beliefs, attitudes, and behaviors that, together, reflect students' academic disengagement (Bean & Eaton, 2000; Tinto, 1993). Earlier indications of this disengagement can include receiving low grades, failing to complete assignments, skipping classes, dropping out of individual courses, or perhaps leaving a specific major. Motivational disengagement, such as decreases in students' self-confidence, interest, and value for the material they are learning, is an important factor that contributes to these poor academic outcomes. In two extensive reviews, for instance, self-efficacy was identified as a critical determinant of college students' academic success (Richardson, Abraham, & Bond, 2012; Robbins et al., 2004).

Disengagement and the failure of postsecondary students to complete an academic degree is a critical problem for many reasons. Obtaining a college degree remains an important pathway to individual economic success and well-being. In contrast, students who drop out of college can amass large amounts of debt that negatively influence their own outlook and the larger economy. College dropouts also consume institutional and financial resources that might otherwise support students who would persist and graduate. Disengagement of students from particular majors or academic programs is also an ongoing national concern. Combined, these issues point to a continuing and increasingly vital need to understand and ameliorate the factors that contribute to students' academic and motivational disengagement in postsecondary settings.

Self-regulated learning (SRL) is one model used to understand students' engagement and achievement in academic settings (Cleary & Zimmerman, 2012; Wolters & Taylor, 2012). Furthermore, SRL may be especially salient as students enter postsecondary contexts (Cohen, 2012; Park, Edmondson, & Lee, 2012; Pintrich & Zusho, 2007). One reason is that, for many students, beginning a higher education is accompanied by increased personal and social freedom, responsibility, and independence. Many students are—often for the first extended time—away from the direct supervision of parents. College typically presents students with additional opportunities and greater flexibility with regard to their social life and academic pursuits. The nature of instruction and academic demands can also shift dramatically. Compared with many academic requirements in high school, college courses are more rigorous and involve less time in class, fewer interactions with instructors, more long-term assignments and evaluations, and less direct oversight regarding when and how assignments get

completed. Postsecondary educational contexts, therefore, are likely to present serious challenges to students' continuing motivation and active engagement in learning.

The purpose of this chapter is to evaluate SRL as one model for better understanding and addressing motivational aspects of college students' disengagement. Accordingly, the remainder of the chapter is divided into four major sections. We briefly describe our model of SRL and how it applies to motivational disengagement among college students. We then review three types of SRL interventions designed to prevent or ameliorate disengagement among college students. We recommend several instructional practices and policies that can be used to nurture students' SRL, especially with regard to their regulation of motivation. Last, we recommend future directions for the research linking college students' SRL and their engagement within academic contexts.

SRL AS A FRAMEWORK FOR UNDERSTANDING DISENGAGEMENT

Models of SRL have emerged from a diverse set of theoretical roots that incorporate research investigating cognitive and social development, metacognition, volition, and motivation (Zimmerman & Schunk, 2007). Despite this diversity, most models share several core assumptions and a goal of trying to understand and explain individuals' active management of their own academic functioning (Pintrich, 2004). In line with this perspective, we view college students' SRL as an active, constructive process through which they set academic goals and work to monitor and control dimensions of the learning process to accomplish those goals (Pintrich & Zusho, 2007; Wolters, 2003).

Dimensions

The dimensions of learning that students can actively manage during SRL include their own cognition, motivation, and behavior, and elements of the academic context (Pintrich & Zusho, 2007). Cognition concerns the various mental processes individuals use to encode, process, or learn when engaged in academic tasks (Pintrich, 2004; Winne & Hadwin, 1998). Students' cognitive and metacognitive learning strategies have most often been used to represent these processes. A second dimension of learning and engagement that students can self-regulate is their physical actions, overt conduct, or behavior. For example, students manage their time, including when and how much effort they devote toward completing academic tasks

(Zimmerman, Greenberg, & Weinstein, 1994). A third facet of their learning that students can self-regulate is the context or environment (Corno, 2001; Pintrich, 2004). Students, for instance, might monitor and control the lighting, temperature, and noise in their environment. They might manage interactions with their teachers, parents, and peers to promote their own learning (Corno, 2001; Wolters, 2003). Finally, students can self-regulate motivation (Pintrich, 2004; Wolters, 2003), including the direct influence of their motivational beliefs and attitudes (e.g., self-efficacy, value, interests) on their engagement in academic tasks. In addition, this dimension of SRL includes students' efforts to actively plan, monitor, and control their motivation (Wolters, 2003). Although these four dimensions are integrated and each is critical to the overall SRL, in the remainder of this chapter, we focus on students' self-regulation of their motivation.

Phases of SRL

In line with many others (Boekaerts, 1996; Greene & Azevedo, 2007; Pintrich & Zusho, 2007; Winne & Hadwin, 2008; Zimmerman, 2000), we also view SRL as involving multiple interdependent phases. One phase, often labeled *forethought* (Zimmerman, 2000; Zusho & Edwards, 2011), reflects students' planning, goal-setting, prior knowledge activation, and other processes that often occur as students initiate tasks. This phase incorporates students' activation of motivational attitudes and beliefs, such as the perceived importance or usefulness of what they will learn and the interestingness and difficulty of learning tasks, as well as their perceived control and self-efficacy for learning successfully. For instance, students waiting for a class lecture to start might think about how important the course is with regard to their major, but they also may consider how difficult it has been to understand the material and how worried they are about getting a good grade on the next exam. Forethought can also include forming intentions or goals about one's motivation, such as wanting to be interested, engaged, and effortful during the day's lecture.

A second phase, *monitoring* (Pintrich, Wolters, & Baxter, 2000; Winne & Hadwin, 2008), describes students' efforts to be aware of their ongoing processing, progress, or performance with regard to a task or learning activity. With regard to motivation, this phase includes students' awareness of the strength of their motivation for completing a task and recognition of the source(s) of that motivation. Students' understanding of problems, distractions, or other impediments that detract from their motivation may also be part of what they monitor. During class, for example, students might become aware that they are not really interested in the day's topic, that they are being

distracted by alerts on their phone, or that the lack of visual aids makes them feel less confident in their ability to understand the material.

A third phase identified in most models of SRL has been labeled *control, management,* or *regulation* (Pintrich, 2004; Winne & Hadwin, 2008; Zimmerman, 2000). This process involves students' initial engagement and enactment of plans or strategies designed to complete academic tasks (Pintrich et al., 2000; Zimmerman, 2000). For instance, students might bring a cup of coffee to stay alert in a large lecture hall and sit away from perceived distractions. This phase also reflects learners' strategic efforts to change what they are doing to sustain or improve their motivation. After students realize their motivation is waning during a lecture, for instance, they might talk to themselves about how important understanding the material is for their future job, promise themselves a lunch out if they concentrate and take good notes, or try to make the material more immediately relevant by linking it to their own lives (Wolters, 1998, 2003).

A fourth phase incorporated within many models of SRL includes students' efforts to reflect on and respond to feedback generated through their own monitoring or from external reactions to their performance. Motivational aspects of this phase are embodied within the attributional process (Weiner, 2000) and when students update their beliefs about the interestingness, difficulty, and usefulness of particular activities, topics, or courses. After a class has finished, for example, students might conclude that being motivated in the course is challenging because the professor is boring, that sitting by the door makes it difficult to concentrate, or that making up personal examples to illustrate the material makes it more interesting.

Although conceptually distinct, these different phases do not represent a strict time-ordered sequence or a causally connected linear process (Pintrich & Zusho, 2007; Winne & Hadwin, 2008; Zimmerman, 2000). Rather, they provide a structure and emphasize that SRL is a function of students' active and adaptive engagement before, during, and after the completion of academic tasks. Furthermore, they highlight that SRL necessarily involves continuous feedback loops whereby students set goals, evaluate their progress, and modify their actions to advance toward those goals (Cleary & Zimmerman, 2012). As the review here highlights, college students can engage in this type of feedback loop to self-regulate their own motivational processes that are critical to engagement and learning.

INTERVENTIONS FOR IMPROVING COLLEGE STUDENTS' SRL

SRL has proven useful for understanding and predicting college students' academic functioning (Kitsantas, 2002; Pintrich & Zusho, 2007; Wolters, 1998). Students characterized as more frequently involved in SRL

tend to be more successful and productive learners. As a result, some researchers have argued that a major goal of formal education should be to teach SRL skills so that students may become self-regulated learners (Bembenutty, 2008; Boekaerts, 1996). Critical to this viewpoint is the assumption that many of the underlying abilities, skills, beliefs, and dispositions necessary for SRL are amenable to improvement.

Advancements in students' SRL can result from personal experience, modeling, and trial and error (Schunk & Zimmerman, 1997; Winne, 1997; Wolters, 2011). In addition, SRL can be improved through purposeful interventions designed and directed by teachers, counselors, or other educators (Schunk & Zimmerman, 1998). We center our discussion on interventions designed to improve SRL within postsecondary populations, with particular attention to the motivational aspects of these interventions. Our focus is on adjunct interventions that have development of SRL as a primary goal rather than those embedded within regular content courses (Hofer, Yu, & Pintrich, 1998; Zimmerman, Moylan, Hudesman, White, & Flugman, 2011). We consider three types of interventions in our discussion: tutoring, workshops, and extended course work. For each, we identify potential strengths and weaknesses for fostering the motivational aspects of SRL among postsecondary students and consider the empirical evidence of their effectiveness. Table 3.1 presents a summary of the points in this discussion.

Tutoring

Academic counseling, tutoring, mentoring, or other one-on-one instructional experiences represent a common type of intervention used to improve college students' SRL. One defining feature of this type of intervention is the individualized nature of the experience. Unlike more traditional academic tutoring (Topping, 1996), individualized SRL interventions are not primarily geared toward improving students' knowledge or understanding within a particular content area. Instead, tutoring in SRL is focused on improving the more general underlying beliefs, attitudes, and skills necessary for SRL (see Chapter 4, this volume). As tutors work to improve content-specific learning skills and more domain-free strategies and beliefs, however, it can be difficult (and unnecessary) to make this distinction.

One advantage of this type of intervention is that skilled tutors are able to respond to an individual student's needs regarding academic course content and SRL skills (Hock, Deshler, & Schumaker, 1999). A well-skilled tutor can assess students' areas of need with regard to SRL and quickly work on one or more strategies to help them best reach their academic goals. A number of researchers have begun to develop computerized tutoring programs designed to achieve goals similar to this type of individualized tutoring

TABLE 3.1
Comparison of Postsecondary Self-Regulated Learning Intervention Types

Category	Tutoring	Workshops	Course work
Basic characteristics or description	Counseling, mentoring, or coaching Focused more on SRL and less on specific academic subjects, but interventions can include both	Offered through campus learning centers to general student population Often required for struggling or at-risk students	Learning to Learn (L2L), Student Success, or Learning and Motivation Strategies course Offered as elective credit or required for students enrolled in developmental education
Duration	Short-term (~30–90 minutes) Students can attend one or multiple sessions, so duration may vary by student	Short-term (~60–180 minutes) Not usually offered as a series (i.e., students only attend one session)	Longer term one academic session (e.g., semester, quarter)
Dimensions of SRL covered	Based on individual student need Could cover one or all dimensions	Typically focused on one or two specific dimensions or strategies (e.g., note-taking or mind-mapping)	All four areas can be covered, but not often equally Both theory and strategies of SRL
Strengths	Tutors able to assess individual student needs If multiple sessions, opportunity for students to receive and apply feedback	Quick "shot" of SRL instruction Able to focus on a specific strategy or area of SRL	More comprehensive approach to developing effective SRL engagement behaviors Multiple opportunities for feedback and data generation Empirical evidence of improved grades, retention, and SRL engagement of course takers
Weaknesses	Not typically comprehensive SRL interventions (i.e., theory behind strategies not typically discussed)	No guidance on how to modify behaviors after initial instruction	Minimal evidence of effectiveness in improving students' regulation of motivation
Nature of motivational feedback loop	Not present unless motivation is specific focus of intervention sessions	Not generally available	Present more in some courses than in others, depending on curriculum and focus of institution

(Azevedo, 2005; Hadwin & Winne, 2001). Improving students' motivational feedback loop or motivational regulation, however, is not a commonly cited goal of individual tutoring, regardless of how it is delivered.

Empirical evidence that personalized tutoring programs can improve student learning and performance is limited (Hock et al., 1999; Norton & Crowley, 1995). Evidence that these individualized interventions can be effective for improving attitudes, beliefs, or the planning, monitoring, and strategies necessary for motivational regulation is even rarer. In one of the few studies that have examined the effect of tutoring programs on students' SRL engagement, an individualized intervention developed by Butler (2003) proved successful for helping college students with a learning disability improve their ability to engage in SRL. In this system, students and the trained instructors jointly select what tasks they will complete; the instructor asks questions, promotes reflection, and prompts students' strategic thinking; and the student discusses, articulates, and makes final decisions about how tasks are to be completed (Butler, 2003). This work shows that supporting, developing, and improving the motivational and strategic aspects of SRL also can be incorporated into individual tutoring sessions.

Workshops

Workshops represent a second type of academic intervention geared toward improving SRL. Commonly offered through campus learning centers or other support units, this type of intervention is directed at improving one or two component skills within SRL (e.g., note taking, time management), often with a small group of students. Although they may be components of a larger program, workshops most often represent discrete experiences that are independent of other instructional supports (Norton & Crowley, 1995). As an example, a learning center might offer individual workshops, each covering a different aspect of SRL, with attendance voluntary (see Chapters 9 and 10, this volume, for details about professional development workshops).

Workshops or other similar short-term interventions can be appealing to students because the required level of commitment is relatively low and they can select experiences linked to their perceived needs. When these interventions are done well, students can receive a quick, focused "shot" of SRL instruction that they might otherwise not receive. Unless they attend sessions focused on motivation, however, these interventions may provide no help in developing students' motivational regulation. Another disadvantage of these programs is their duration: Although students may receive instruction to help them generate data to modify their behaviors, they often do not receive additional guidance in how to do so.

Moreover, there is little time for them to practice and receive feedback on any skills they are being taught.

Empirical research that has evaluated the effectiveness of actual workshops for improving students' SRL, engagement, and academic performance is minimal. However, early studies have found that the amount of time students spent receiving these short-term interventions at learning centers contributed to the academic success of high-risk college students (Abrams & Jernigan, 1984). In addition, students who received intervention services often outperformed those who did not (Norton & Crowley, 1995). To the extent that they reflect similar short-term experiences designed to improve a discrete set of skills, beliefs, or dispositions, evidence for the efficacy of instructional treatments within experimental studies also indicates that workshops can be effective. For instance, studies have consistently shown that short-term interventions can be used to train students of all ages to use more motivationally adaptive attributions (Perry, Hechter, Menec, & Weinberg, 1993; Weiner, 2012). These interventions can range from a single session to multiple sessions spread out over time and have been shown to help students generate more adaptive attributions (Haynes, Ruthig, Perry, Stupnisky, & Hall, 2006; Perry et al., 1993) and increase their likelihood of academic success (Haynes et al., 2006; Haynes Stewart et al., 2011; Van Overwalle & de Metsenaere, 1990).

Course Work

A third type of intervention designed to improve college students' SRL is a formal, semester-long, credit-bearing course. Colloquially termed Learning to Learn (L2L), these courses often are designed to help students improve their academic performance by instructing them in some of the theory behind the process and about specific strategies necessary for SRL. In general, course-takers may first be provided with a general overview of SRL and how the process affects academic outcomes. Then, throughout the semester, students are taught specific SRL strategies and provided opportunities to apply the strategies to current courses or assignments. These courses play an important role in providing academic support to undergraduate college students (Dembo, 2004) and thrive at a range of institutions (Forster, Swallow, Fodor, & Foulser, 1999; Petrie & Helmcamp, 1998; Simpson, Hynd, Nist, & Burrell, 1997). L2L courses are offered under many titles and descriptions (e.g., Student Success Course, Introduction to College, and College 101), with a curriculum that varies across institutions. The still expanding selection of textbooks (e.g., Dembo & Seli, 2013; Downing, 2010; Ellis, 2013; Tuckman, Abry, & Smith, 2008; Van Blerkom, 2012) intended for these courses is evidence of their popularity.

Despite the inherent variance in their particular features and requirements, many prototypical elements exist within these courses. For instance, many cover the cognitive, motivational or affective, behavioral, and contextual dimensions inherent in SRL (Bembenutty, 2008; Hofer et al., 1998). Specific topics often include time management, goal-setting, decision making, affect management, test-taking, and help-seeking, and specific information processing techniques based on cognitive psychology. Other aspects that contribute to students' success, including career planning and exposure to campus resources, such as academic advising and the campus learning center, also may be covered. Instruction that builds motivational strategies and feedback loops that focus on motivation are not uncommon within these courses (Hofer et al., 1998). In general, for-credit L2L courses appear to provide an effective context for SRL interventions because they provide motivational instruction and strategy instruction with metacognitive information, and some courses provide contextual support and feedback.

Empirical research that has documented the effectiveness of for-credit courses designed to foster SRL is limited but growing. For instance, course-takers have been found to earn higher semester grade point averages than non–course-taker comparison students in both the semesters of enrollment and subsequent academic terms (Bail, Zhang, & Tachiyama, 2008; Tuckman, 2003; Tuckman & Kennedy, 2011; Weinstein, 1994). Moreover, course enrollment appears to improve the likelihood that students are retained between semesters (Forster et al., 1999; Lipsky & Ender, 1990; Tuckman & Kennedy, 2011) and complete their degrees (Bail et al., 2008; Schnell, Louis, & Doetkott, 2003; Tuckman & Kennedy, 2011; Weinstein, Dierking, Husman, Roska, & Powdrill, 1998). Course-takers have reported higher levels of SRL engagement at the end of the semester (Forster et al., 1999; Hofer & Yu, 2003; Petrie & Helmcamp, 1998), a finding that suggests that SRL courses help students become more engaged in managing their own learning processes. Specifically, students have frequently reported higher levels of aspects of achievement motivation, such as self-efficacy, by course's end (Hofer & Yu, 2003).

RECOMMENDATIONS REGARDING COURSE-BASED SRL INTERVENTIONS

Despite the limited research directly evaluating particular components of course-based SRL interventions, it is possible to make recommendations regarding the practices and policies for the design and implementation of these courses. In this section, we consider methods of enhancing college

students' awareness, monitoring, and regulation of their motivation and engagement within the context of semester-long SRL courses.

Practices

One consistent message from the research on SRL is that students are more likely to engage in SRL, persist at difficult work, and be effective learners when they activate, hold, or express adaptive motivational beliefs and attitudes (Pintrich, 2000; Weinstein & Palmer, 2002; Zimmerman & Schunk, 2007). These adaptive forms of motivation include competence about doing the task, about themselves, value for the topic, and interest in the learning activities. Of course, one obvious implication of this assumption is that interventions can be designed to directly improve students' motivational beliefs and attitudes. For instance, an intervention can be planned so that students' values for course materials, students' confidence in their academic abilities, or other forms of motivation become stronger and more adaptive for engagement.

A second implication of this assumption is that interventions to improve SRL should promote students' understanding or awareness of the different forms of motivation that may affect their engagement and performance within academic tasks. Many students may understand that material or tasks that are boring or lack value may take more effort and self-restraint to learn. Other nuances of motivation may be understood less pervasively, for instance, the importance of making adaptive attributions about why setbacks have occurred (Weiner, 2012), how a sense of autonomy or relatedness might make some learning more appealing (Jones, 2009), or how breaking down challenging tasks into bite-sized pieces helps increase self-efficacy (Tuckman et al., 2008).

A related implication is that interventions should teach students effective methods for activating adaptive motivational beliefs during the forethought stage of SRL. Students who dwell on past difficulties, perceived shortcomings in their abilities, or the negative implications of potential failures are held down by their own disparaging beliefs. More optimistic or positive thinking may be beneficial, but it may not come naturally for all students. Hence, interventions can help students establish tactics for activating more adaptive beliefs that highlight competencies, interest, value, feelings of autonomy, or other forms of motivation that will encourage the types of engagement, effort, and persistence that more often produce success.

Consistent with the central role of monitoring within SRL, an effective course-based intervention for improving college students' SRL should also include efforts to improve learners' ability and propensity to monitor their motivation. The self-adjusting, self-correcting nature of SRL depends on students' ability to monitor different aspects of their own engagement within a

learning task (Butler & Winne, 1995). When considering motivation, for instance, at least two dimensions might be the target of students' monitoring. Students may simply monitor their ongoing level of motivation: Are they feeling motivated and willing to be engaged and work hard at completing a task? Students who fail to take notice of their ongoing level of motivation may find themselves distracted, disengaged, or lacking deep engagement. A second aspect of motivation that can be monitored is the type, source, or form of motivation underlying a student's engagement in learning. For example, some students are motivated to outperform their peers (i.e., performance goals), whereas others are driven by more personal goals, such as being the first in their families to earn a college degree. Research has suggested that some forms of motivation may not be as adaptive as others (Anderman, Gray, & Chang, 2012; Jones, 2009; Schunk & Pajares, 2009). As a result, it may be useful for students to understand the source of their motivation and whether it could be changed. As an example, monitoring might lead students to realize that they are working only to get a good grade or to outperform their peers, rather than to learn the material deeply for more intrinsic reasons.

The usefulness of understanding and monitoring one's own motivation is limited unless students are also able to take steps designed to control, self-correct, adjust, or regulate and improve the situation, when necessary. Students must have and be able to adeptly implement strategies for the regulation of motivation. As with more cognitive strategies (Hadwin & Winne, 1996; Pressley & Harris, 2009), the ability to effectively implement motivational regulation strategies is a function of students' declarative, procedural, and conditional knowledge regarding those strategies. Interventions for improving students' SRL and motivational engagement, therefore, should include efforts to build each of these different forms of strategic knowledge. Declarative knowledge can be improved by exposing students to multiple types of motivational regulation strategies. Interventions should incorporate instruction (e.g., modeling, direct explanation) in how to enact the different types of strategies to build procedural knowledge. Interventions should also include opportunities to engage in varied practice in a way that builds conditional knowledge about when or under what circumstances strategies work best. For learning strategies to become actively implemented outside of the intervention, students need time to practice those strategies in situations similar to ones in which the strategies will actually be used and in diverse settings (Dembo, 2004; Hadwin & Winne, 1996; Weinstein, 1994; Weinstein et al., 1998). Instead of simply teaching students about learning strategies, interventions are most effective when students are able to apply the strategies to real-life problems and learning situations (Hadwin & Winne, 1996; Hattie, Biggs, & Purdie, 1996). For example, an instructor could first teach students how to use positive self-talk to regulate motivation, then allow

students time to practice self-talk with a peer for a course in which they are currently enrolled.

The importance of reflection or reaction also has implications for what an effective SRL intervention should include. Unlike monitoring that focuses on more immediate situations and changes in behavior, reflection highlights the need to generate additional metacognitive knowledge about oneself as a learner, about tasks, and about strategies on a broader and more long-term basis. SRL interventions should include efforts to make students aware of these processes and to provide them methods of engaging in these processes in a purposeful and active manner. One well-established type of intervention that illustrates this goal is attribution retraining programs (Haynes et al., 2006; Perry et al., 1993). One shortcoming of this work is that, in many cases, students are trained to make more adaptive attributions but are not provided the insight necessary to be aware of this process to effectively continue to the evaluative process.

Reflection is also an important process for building metacognitive knowledge about the effectiveness of regulatory strategies, including those associated with motivation. Teaching college students effective methods for engaging in reflection about their motivational experiences during learning, what obstacles were most difficult to overcome, which strategies worked best (or worst), and what changes might be necessary in the future should improve their overall SRL. However, simply practicing the strategy does not guarantee that the student will master the SRL process; students must learn to generate and analyze performance data to change their SRL behaviors (Cleary, Platten, & Nelson, 2008; Cleary & Zimmerman, 2004). To truly help students develop effective self-regulation of motivation skills, they need to receive feedback and instruction throughout the semester. It would be beneficial for students to provide data regarding their motivational engagement at multiple times during the course with an opportunity to receive feedback from their instructors or peers. For example, on the first day of the semester, students could be asked to state their reason for being in college (i.e., their goal) as part of an icebreaker exercise. After each student shares his or her goal with the class, the instructor could state that it is important for students to be aware of their goals because, ultimately, these goals will serve as the students' source of motivation throughout their college careers. The definition of *motivation* established by Pintrich and Schunk (2002) could be displayed to the class so that learners see how goals are integral to motivation: "Motivation is the process whereby goal-directed activity is instigated and sustained" (p. 5). This activity could be repeated during the semester by providing students time to reflect on their originally stated goals; the instructor would prompt students to determine if their goals had changed and if the strategies they used to achieve their goals had changed. Moreover, students could be asked to

describe any challenges they have faced in reaching their goals or steps they need to take to be successful. This activity could be individualized by having students complete the assignment independently on paper (or through an online course website), so that instructors would be able to provide personalized feedback that students could use to effectively regulate their motivation. This type of instructional activity would give students a chance to become proficient in the full regulation of motivation process, specifically in regard to monitoring.

Policies

Along with these specific considerations of what should be taught (e.g., attribution theory) and how it might get taught (e.g., semester-long courses), it is also possible to make broader recommendations about the structure and policies concerning SRL interventions. First, based on the complexity and breadth of SRL, we suggest that, for many students, longer term and more holistic interventions may be more effective than short-term training with more isolated components. Although shorter term programs, such as workshops, can improve particular aspects of students' SRL (e.g., time management, use of cognitive strategy), SRL is a multifaceted, interdependent, and recursive process. It can be challenging to promote the broad set of beliefs, attitudes, and skills, and to practice the feedback cycles students must master to be effective at SRL without extended attention. Hence, the semester-long duration of for-credit courses may provide a more fitting context to best teach SRL to college students.

The demand for credit-bearing courses is quite robust, even within large, prestigious, and academically rigorous universities (Weinstein et al., 1998). It is reasonable to assume that similar courses would be viable interventions for promoting student success at other institutions. An implication for broader policy, therefore, is that more universities should consider instituting these types of courses. Although student success courses often are offered as part of developmental or remedial education, most students can benefit from instruction that supports greater engagement in SRL (Bembenutty, 2008). Given that many students entering postsecondary education appear underprepared and unable to take responsibility for their own learning, these courses may best be targeted to first- or second-year students.

Another broader principle is that the curriculum and course design should be tailored to the needs of the student population to which the course is aimed. This recommendation has also been made by Hofer et al. (1998), who acknowledged that SRL courses are not one-size-fits-all interventions but must, instead, be created with particular learners in mind. Educators and policymakers should carefully select a textbook, curriculum, assignments,

and evaluations based on institutional student need. For example, courses designed to improve the SRL of advanced or honors students might include more theoretical justification and discussion than a course created for struggling at-risk students.

Transfer is another critical issue when it comes to evaluating the effectiveness of SRL interventions (Hofer et al., 1998). When focused on domain-general aspects of SRL, the effectiveness of courses and other interventions depends on students' ability to mindfully transfer what they have learned to the specific contexts where it is needed. This type of high-road or far transfer often proves difficult to achieve in learners of any age. SRL interventions might also include the type of repeated practice that is supposed to promote low-road transfer of particular strategies or skills. Although more easily achieved, this automatic use of strategies can run counter to the more reflective and conscious awareness of one's own learning that is central to SRL.

DIRECTIONS FOR RESEARCH

SRL remains an active and fertile model for conducting research on students' motivation, engagement, and academic achievement. Within this larger area of research are many potentially productive avenues of research examining SRL interventions designed to improve motivation and motivational feedback loops that will reduce disengagement among college students. In this section, we highlight several directions that would add key insights into our understanding of how educators and policymakers can support these interventions.

Perhaps most salient, additional research is needed to establish more firmly that extended for-credit courses positively influence students' academic functioning in ways that promote motivation, engagement, and subsequent achievement. Although some research has shown this connection (e.g., Tuckman & Kennedy, 2011), it is limited and far from conclusive. In particular, additional research is needed that expands the types of academic outcomes linked to SRL. The effectiveness of SRL interventions has most typically been evaluated by the links to individual course grades or to grade point averages for a semester (Bail et al., 2008; Lipsky & Ender, 1990; Tuckman, 2003; Tuckman & Kennedy, 2011; Weinstein et al., 1998). Although important, grades do not provide a complete picture of academic performance and can lack validity with regard to predicting longer term or nonacademic indicators of success. Research linking participation in extended SRL interventions with retention, graduation, choice of major, or other indicators of postsecondary academic success would add substantially to

the overall understanding of whether these courses are effective and should be propagated more broadly.

Along with a more diverse set of outcomes, research is needed to better isolate and test the particular components of SRL interventions that are most vital to students' engagement and later success. Courses designed to develop college students' SRL exhibit overlap in their curriculum, yet there is still much diversity in what they teach and how they teach it. Research that evaluates the importance of specific components, content, or activities within these courses would provide instructors and course designers critical guidance. This need may be particularly acute when it comes to evaluating those intervention pieces tied to students' awareness and regulation of their own motivation. In contrast to the work on cognitive and metacognitive strategies (Hattie et al., 1996), research examining these motivational interventions has been more limited.

Another potentially important direction for future research is to evaluate the role that workshops, tutoring, or other short-term interventions can have on college students' SRL and their subsequent motivation, engagement, and academic performance. Not every student must participate in an extended for-credit course to self-regulate their learning more effectively. More limited but targeted interventions may be sufficient, especially for certain students or under some circumstances. For instance, workshops on aspects of SRL that gain increased salience when students enter postsecondary contexts (e.g., time management, help-seeking) may be effective, even for students who are well skilled with regard to other forms of SRL (e.g., cognitive strategies). Especially needed are studies that investigate whether those aspects of SRL tied most closely to motivational regulation can be effectively improved through workshops or similar types of interventions.

Within all these lines of research is a need for more experimental or quasi-experimental work that will produce greater insights into the causal relations between participating in particular interventions and improvements in academic outcomes. The research on SRL has been criticized for an overreliance on cross-sectional designs and self-report data (Winne & Perry, 2000). One reason for this pattern is that experimental designs are not always possible within educational contexts. For instance, college students often cannot be assigned or required to complete particular courses, workshops, or tutoring sessions. Moreover, the diversity of both prior experiences and subsequent course-taking can make it difficult to identify appropriate comparison groups. Preventing or even delaying students from exposure to instructional practices presumed to be useful for their learning and engagement can also be problematic. Still, research that compares groups of students who are or are not exposed to particular SRL interventions is needed

to establish the causal connections necessary to more broadly advocate for particular instructional practices.

CONCLUSION

SRL has emerged as an important model for understanding and improving college students' academic functioning (Pintrich & Zusho, 2007). One part of this emergence has been the development of interventions designed to support the growth of students' SRL, including their motivational regulation (Hofer et al., 1998; Tuckman & Kennedy, 2011). A comprehensive articulation of these interventions, including a firm understanding of the elements that are most critical to students' development of SRL and later academic success, however, has not been presented. In particular, the features of these interventions that are necessary for initiating and sustaining a motivational feedback loop, improving motivation, and preventing students' disengagement are still underdeveloped. Additional efforts at designing and testing these interventions are clearly needed.

All signs suggest that, going forward, these efforts will be productive in providing insights that help practitioners create effective SRL interventions. Hopefully, these research-based interventions will shape a future generation of motivated, engaged, self-regulated postsecondary learners confident in their capabilities to learn and, ultimately, positively affect their worlds.

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